20. A signal transmission apparatus comprising:

- a mapper operable to map a data stream to an n-level mapped signal;

- a DC offset generator operable to add a DC offset to the n-level mapped signal to produce a VSB modulated signal including a carrier produced by the DC offset; and

- a transmitter operable to transmit the VSB modulated signal.

21. A signal receiving apparatus comprising:

- a receiver operable to receive a VSB modulated signal, having information of a data stream, wherein the VSB modulated signal includes a carrier produced by a DC offset; and

- a demodulator operable to demodulate the VSB modulated signal to the data stream.

22. A signal receiving apparatus according to claim 21, wherein said demodulator is operable to demodulate the VSB modulated signal by using the carrier.

23. A signal receiving apparatus according to claim 22, wherein said demodulator includes a carrier reproducer operable to reproduce a carrier according to a portion of the carrier produced by the DC offset.

24. A signal receiving apparatus according to claim 21, further comprising a video decoder operable to decode the data stream to a video signal.

25. A signal receiving apparatus according to claim 24, further comprising an output part operable to output the video signal.

26. A signal receiving apparatus according to claim 24, further comprising a display operable to display the video signal.

27. A signal transmission and receiving method comprising a transmission method and a receiving method,

said transmission method comprising:

- mapping a data stream to an n-level mapped signal;

- adding a DC offset to the n-level mapped signal to produce a VSB modulated signal including a carrier produced by the DC offset; and

- transmitting the VSB modulated signal;

said receiving method comprising:

- demodulating the VSB modulated signal to the data stream.

28. A signal transmission method comprising:

- mapping a data stream to an n-level mapped signal;

- adding a DC offset to the n-level mapped signal to produce a VSB modulated signal including a carrier produced by the DC offset; and

- transmitting the VSB modulated signal.

29. A signal receiving method comprising:

- receiving a VSB modulated signal, having information of a data stream, wherein the VSB modulated signal includes a carrier produced by a DC offset; and

- demodulating the VSB modulated signal to the data steam.

30. A signal receiving method according to claim 29, wherein said demodulating comprises demodulating the VSB modulated signal by using the carrier.